ON A SMALL COLLECTION OF MALLOPHAGA FROM THE UNITED STATES, WITH DESCRIPTIONS OF THREE NEW SPECIES

By M. A. Carriker, Jr., *Popayan, Colombia, S. A.*

The species listed in this paper were sent to the author for identification by Mr. Nixon Wilson, Department of Entomology, Purdue University, and were, when not otherwise indicated, collected by him.

The collection contains nine species, three of which are apparently new to science and are described below, while a fourth is probably a new subspecies, but lack of the necessary comparative material prevents its proper description.

All measurements are in millimeters and all drawings were prepared by the author, accurately drawn by means of the eyepiece micrometer.

All types have been returned to Mr. Wilson, but paratypes, when available, have been retained by the author.

Philopterus ocellatus (Scopoli), 1763

Pediculus ocellatus Scopoli, Ent. Carniolica, p. 382 (Host: *Corvus corone* (*sardonius* Kleinschmidt).

The species of *Philopterus* found on the American Crow (*Corvus brachyrhynchos*) has been determined to be the same as that of the European Crow (*C. corone*), according to Hopkins and Clay (Checklist of Mallophaga, 1952). I have not personally compared the American parasite with authentic specimens of *ocellatus*.

A pair of this species was taken on *Corvus brachyrhynchos* by S. R. Joseph at Jacobus, York Co., Pa., Nov. 12, 1955. They agree with specimens in my own collection from Pennsylvania and Nebraska.

Philopterus sp.

A pair of this genus from *Eremophila alpestris*, collected by R. E. Mumford, Washington Co., Ind., Jan. 10, 1955.

They are closely related to *P. c. citrinellae* (Schrank) (= *P. communis* of authors, *in partim*), and are very likely subspecies of it, but I lack the necessary material for comparison.

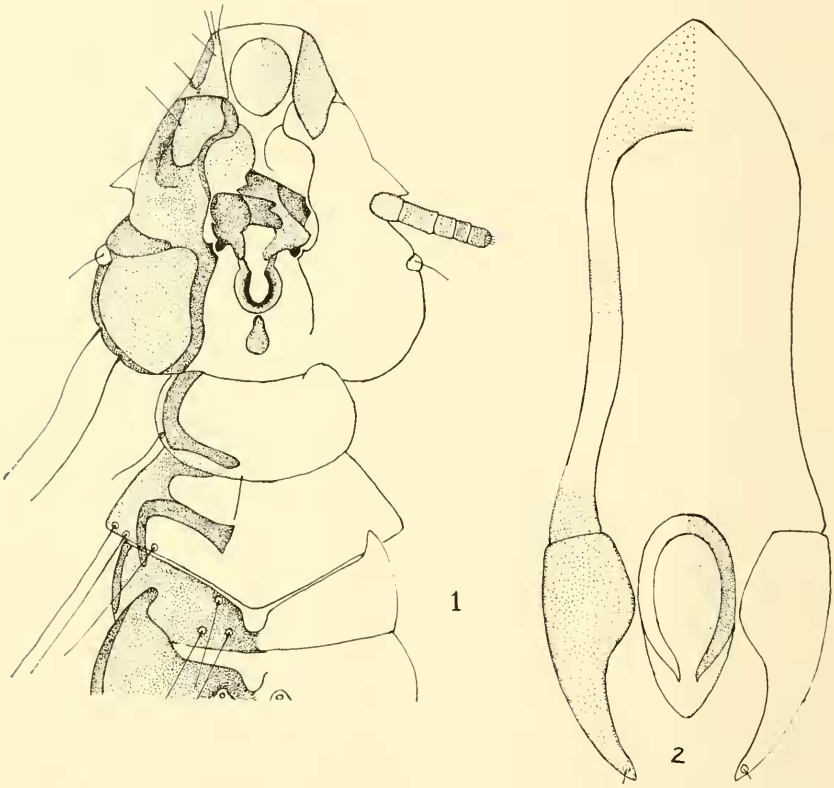
Brüelia rotundata (Osborn), 1896

Nirmus rotundatus, Osborn, Bull. U. S. Bur. Ent. (n.s.) 5: p. 226 (Host: *Corvus corone brachyrhynchos* Brehm).

A pair was taken on the same individual host as noted under *Philopterus ocellatus*. The specimens agree perfectly with material from the type host collected by the author at Lincoln, Nebraska.

Penenirmus arcticus sp. nov.
(Figs. 1 and 2)

Types, male and female adults, collected by R. E. Mumford from a *Picoides arcticus* (Swainson), taken 3 miles east of Pike Lake, Luce Co., Michigan, Feb. 5, 1956.



Penenirmus arcticus, n. sp., male: fig. 1, head, thorax and abdominal segments I-II; fig. 2, genitalia.

Diagnosis.—Apparently nearest to *P. auritus varius* Emerson, from *Sphyrapicus varius*, agreeing with that species in the small, uniformly colored anterior plate. It differs in having the head narrower at temples and wider at the frons; anterior plate smaller; cephalic carinae narrower, less deeply chitinized and paler in color. The pleurites are of a different color pattern and the tergites are separated from the pleurites by a wide hyaline area, in which are located the spiracles.

The dark, marginal carinae of the legs, so prominent in *auritus*, are but slightly indicated along their inner margins. The types were left too long in the clearing solution so that it is not possible to evaluate all of the markings of the head and body.

It is apparently specifically distinct from *auritus* (Scopoli), due to the totally different shape and structure of the anterior plate, the differences in the male genitalia and structure of the abdominal sclerites. The genitalia have long parameres, but slightly incised at their tips, and the endomera is longer.

In *auritus* the heads of the abdominal tergites, while equally long, are of a different shape; the hyaline area surrounding the spiracles is scarcely evident in I and II, and becomes more prominent posteriorly. The median emargination of tergites I and II in the male is absent in segment II of the female.

In the pair of neoparatypes of *auritus*, with which these specimens have been compared, the median anterior portion of the abdomen in both sexes is completely obscured by foreign matter, so that it is impossible to determine whether or not the median emarginations of tergites I and II are present.

The species is represented by the ♂ holotype, ♀ allotype and 3 ♂♂ and 3 ♀♀ paratypes. All are in good condition. ♂ and ♀ paratypes in author's collection.

	♂		♀	
	length	width	length	width
Body	1.71	.....	1.78	.....
Head frons		.137	....	.158
Head temples	.506	.45	.55	.497
Prothorax	.124	.288	.20	.301
Pterothorax	.21	.45	.24	.463
Abdomen	.89	.603	1.23	.70
Basal plate	.174	.095		
Parameres	.085	.10		
Endomera	.07	.035		

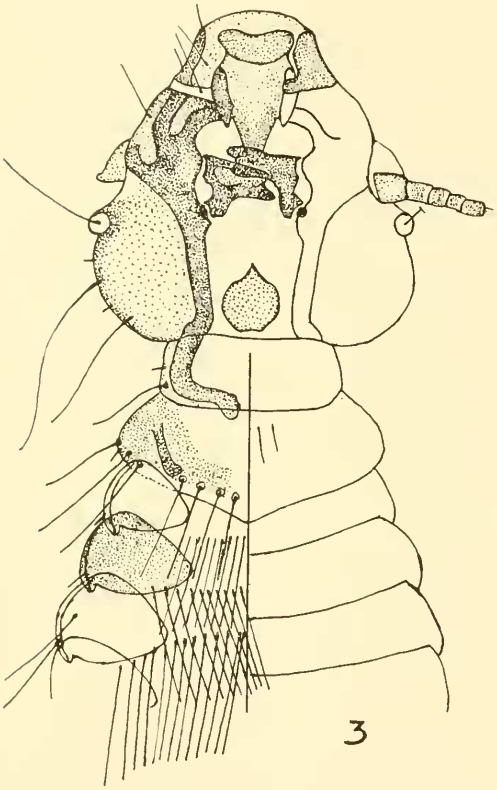
Strigiphilus varius sp. nov.
(Figs. 3 and 4)

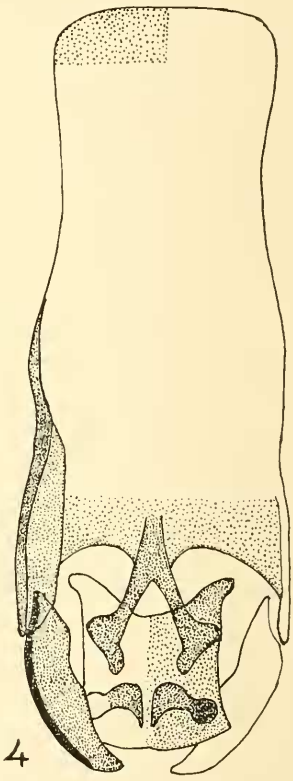
Types, male and female adults, from *Strix v. varia* Barton, collected at Saltillo, Washington Co., Ind., Dec. 29, 1955.

Diagnosis.—Most closely related to *Strigiphilus syrnii* (Packard), from *Strix nebulosa*, with which they have been compared (a ♂ and 2 ♀♀ in the author's collection from the type host).

It differs from *syrnii* in much larger size; head proportionally wider at temples (♀ head .72 x .697 against .63 x .58); decidedly different cephalic carinae; both mandibles with apical portion parallel-sided, and both with bipartite tips (right mandible in *syrnii* pointed).

The premarginal carinae are submarginal posterior to the clypeal suture (marginal in *syrnii*); lateral margins of head, anterior to clavi, are undulating, while in *syrnii* they are uniformly concave; anterior plate is hour-glass shaped, less swollen laterally in median portion.





Strigiphilus varius, n. sp.: fig. 3, head, thorax and abdominal segments I-III, female; fig. 4, male genitalia.

The pleurites are very much narrower and poorly chitinized (prominent and deeply chitinized in *syrnii*); tergites are short, poorly chitinized and with broadly-rounded inner ends. With the exception of the short tergites the whole abdomen is hyaline, the margins of the segments being almost invisible; hooks at posterior ends of pleurites in segments I to III more strongly developed.

Chaetotaxy much as in *syrnii;* abdominal segments VIII and IX are fused in the female, forming one large segment, while in the male they are distinctly separated, IX being small and rounded apically. In segment III there is one long seta set within the pleurite, slightly posterior to the middle of tergite; in segment IV two long setae and in V to VIII there are 3 in a transverse row.

The male differs from the female in smaller size, narrower frons, shorter and more rounded abdomen and different structure of abdominal segments VIII and IX, as described above. Chaetotaxy about the same, excepting greater abundance and longer setae on segment IX of male.

The genitalia differ decidedly from those of *syrnii*, especially the basal plate, which is shorter and wider, also the endomera. The parameres in *syrnii* are much thicker basally and taper to a slender tip (see fig. of genitalia).

The nymphs present a very interesting and decidedly different head structure from that of the adults, the pre-antennary area being short and broad, with the marginal carina unbroken at the clypeal suture, this area having a strikingly similar appearance to *ceblebrachys*, so much so that I suspected at first examination that two species were involved.

The species is represented by the ♀ holotype, ♂ allotype, 9 ♂♂ and 21 ♀♀ paratypes; 2 ♂♂ and 2 ♀♀ paratypes retained by the author.

Measurements of the types:

	♂		♀	
	length	width	length	width
Body	1.84	----	2.10	----
Head frons	----	.18	----	.245
Head temples	.64	.59	.72	.697
Prothorax	.20	.346	.17	.39
Pterothorax	.216	.52	.237	.59
Abdomen	.92	.78	1.12	.92
Basal plate	.33	.144		
Parameres	.07	.13 (bases)		
Endomera	.12	.08		

Strigiphilus otus Emerson, 1955

Strigiphilus otus Emerson, 1955, Proc. Ent. Soc. Wash. 57(5):241; figs. 1 and 2 (Host: *Otus asio gilmani* Swarth.)

A pair of what seems to be this species from *Otus asio*, collected by G. L. Ward at Earlham College, Wayne Co., Ind., summer of 1953.

The specimens are, unfortunately in poor condition, and are not in a condition for careful, detailed study.

The male genitalia seem to be the same as the figure published by Emerson. The abdominal chaetotaxy cannot be distinguished.

Gruimenopon canadense Edwards, 1949

Gruimenopon canadense Edwards, 1949, Psyche 56:116; pl. VI, figs. 1-4 (Host: *Grus c. canadensis* (Linné).

Several specimens of this species were collected by R. E. Mumford from a *Grus c. tabida*, taken at the Jasper-Pulaski State Game Preserve, Pulaski Co., Ind., Nov. 29, 1955.

I do not have material of this species for comparison, but the specimens are in perfect condition and agree exactly with the description and figures published by Edwards. The only other species of this genus is *G. longum* (Giebel), from *Grus g. grus*, of which I have a pair from the type host.

The American species is, apparently, very rare in collections.

Myrsidea interrupta (Osborn), 1896

Menopon interruptum Osborn, Bull. U. S. Bul. Ent. (n.s.), 5, p. 245; pl. II, fig. h. (Host: *Corvus corone brachyrhynchos* Brehm).

Several specimens of both sexes from the type host, collected by S. R. Joseph, at Jacobus, York Co., Pa., Nov. 12, 1955. Compared with material collected by the author from type host taken at Delmar, Pa., they agree in all respects.

Menacanthus aurocapillus sp. nov.
(Figs. 5, 6, 7 and 8)

Types, male and female adults, from *Seiurus aurocapillus* (Linné), collected at Fort Meade, Anne Arundel Co., Maryland, July 21, 1955.

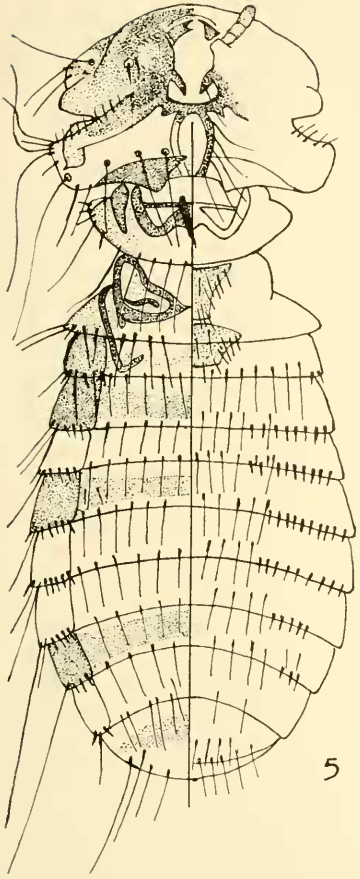
Diagnosis.—The present species is an unusual type of the genus *Menacanthus*, resembling in some ways, especially the shape of the head, the genus *Machaerilaemus*. The ventral head spines are poorly chitinized and are set at an unusual distance behind the bases of the mandibles. At first glance these sclerites do not seem to be the usual ventral spines of the genus, but a careful study of numerous specimens of both sexes leaves no doubt of their real identity.

The deep ocular notches are also typical of *Menacanthus*, and are not present in *Machaerilaemus*. The horseshoe-shaped occipital plate, on each side of which are set four long, strong setae (not 5 as shown in figure) is also present in many species of *Menacanthus*, while such a structure is known from but one aberrant species of *Machaerilaemus*, while the type of genitalia also agrees with the former genus.

The present type of thoracic sternal plates, with their setae, is also to be found in *Menacanthus*, as well as the abdominal chaetotaxy. The heavy infestation of this species (30 specimens on one individual host), together with the large number of males is totally unlike the species of *Machaerilaemus*, of which never more than 1 to 3 individuals are found on a single bird, while the male sex is extremely scarce. There are numerous records of *Menacanthus* being taken on Passerine birds but this seems to be the first instance of its presence on a species of the Parulidae.

The abdominal chaetotaxy, as here represented, is not commonly found on the genus *Menacanthus*, but is present on a number of known species. There is a series of short spines (3 to 5) along the dorsal, posterior margin of the pleurites, with another row of 3 to 10 spines on the posterior margin of sternites II to VII, extending from near the lateral angle to a point more than half way to the median line of the abdomen on segments II to V.

Menacanthus aurocapillus, n. sp.: fig. 5, male; fig. 6, tip of female abdomen; fig. 7, male genitalia; fig. 8, sternal sclerites, female.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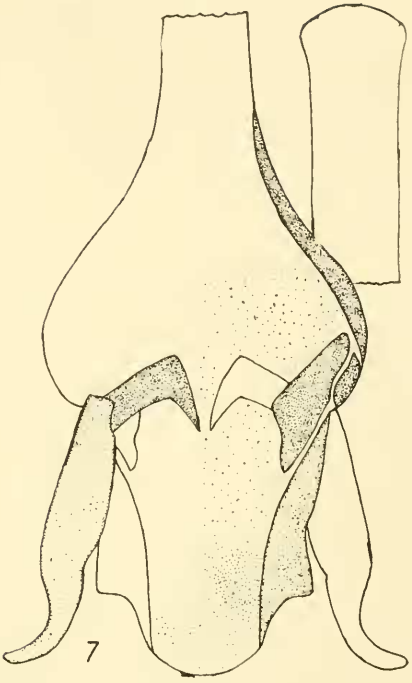
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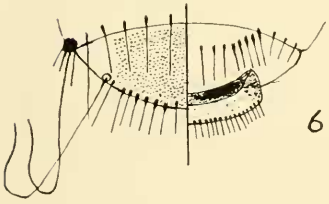
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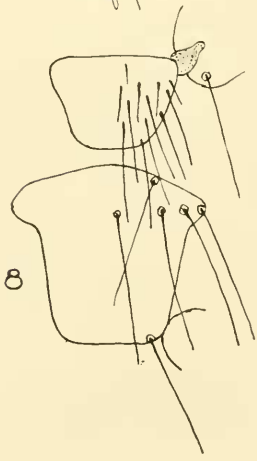
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The remainder of the abdominal chaetotaxy, as well as that of the head and thorax, is shown in the figure. The tergites are continuous across the abdomen and fused with the pleurites, but are separated by hyaline borders on both sides. The sternites are not clearly visible, being directly beneath the posterior half of the tergites, but they, also, seem to be fused with the pleurites.

The species is represented by the ♂ holotype, ♀ allotype, 12 ♂♂, 12 ♀♀ and 6 nymphs paratypes. 2 ♂♂ and 2 ♀♀ paratypes have been retained in the author's collection.

	♂		♀	
	length	width	length	width
Body	1.00	----	1.23	----
Head frons	----	.30	----	.33
Head temples	.247	.342	.274	.397
Prothorax	.11	.25	.126	.129
Pterothorax	.096	.288	.13	.348
Abdomen	.565	.415	.77	.49
Basal plate	.247	.095		
Parameres	.075	.124 (tips)		
Endomera	.08	.08		

NOTE ON STRIGIPHILUS OCULATUS (RUDOW) AND S. BUBONIS (OSBORN)

I have in my collection 2 ♂♂ and 2 ♀♀ of a *Strigiphilus* taken on *Bubo v. virginianus*, shot at Indiana, Pa., and 3 ♀♀ from *B. v. occidentalis*, collected at Lincoln, Neb. Also a large series of the same genus from *B. v. elutus* Todd, collected in Colombia. This material represents three decidedly distinct species. Those from Pennsylvania have the preantennary area much shortened, with the clypeus short and broad and with divergent sides, approaching the type of *ceblebrachys* (Nit.)

The 3 ♀♀ from Lincoln have the preantennary area longer and narrower and with the clypeal area longer and narrower anteriorly, and with the sides less divergent, very similar in this respect to *syrnii*. The series from Colombia have the preantennary area still longer and narrower, especially the clypeus, the latter with the sides but slightly divergent, more of the type of *cursor*.

It would seem from this evidence that there is no logical reason for sinking *Docophorus bubonis* Osborn (Hopkins & Clay, 1950, p. 339) in favor of *Nirmus oculatus* Rudow. Osborn's description certainly agrees with my specimens from Indiana, Pa. He says: "General appearance of *ceblebrachys*," which is quite true. On the other hand, if we wish to keep Rudow's *oculatus* it would seem much more logical to apply it to the specimens from Nebraska, with the longer, narrower head, which certainly approximates the old idea of "*Nirmus*," as given by Rudow.

I therefore designate a female from *Bubo virginianus occidentalis*, collected by the author on Nov. 4, 1902, at Lincoln, Neb., as the neoparatype of *Strigiphilus oculatus* (Rudow).